

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A group III nitride compound semiconductor device, comprising:
 - a substrate including an upper surface;
 - an undercoat layer ~~uniformly~~ formed on ~~an entirety of~~ said upper surface of said substrate, said undercoat layer being doped with Mg to form convex portions in an upper surface of said undercoat layer in which an upper surface of said undercoat layer is covered with convex portions, ~~each of~~ said convex portions being shaped like a truncated hexagonal pyramid; and
 - group III nitride compound semiconductor layers formed on said undercoat layer.
2. (Previously presented) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises GaN doped with magnesium.
3. (Original) A group III nitride compound semiconductor device according to claim 2, wherein a magnesium concentration of said undercoat layer is not lower than 10^{20} /cm³.
4. (Previously presented) A group III nitride compound semiconductor device according to claim 2, wherein said undercoat layer is doped with an n-type dopant and is of an n-type as a whole.
5. (Previously presented) A group III nitride compound semiconductor device according to claim 1, wherein said substrate comprises one of sapphire, SiC, and silicon single crystal.
6. (Currently amended) A group III nitride compound semiconductor device according to claim 1, further comprising:
 - a sedimentary layer interposed between said undercoat layer and said substrate.

7. (Previously presented) A group III nitride compound semiconductor device according to claim 1, wherein said group III nitride compound semiconductor layers comprise one of a light-emitting device, a photodetector, and an electronic device as a whole.

8-31. (Canceled)

32. (Currently amended) A group III nitride compound semiconductor device, comprising:

a substrate including an upper surface;

an undercoat layer ~~uniformly~~ formed on ~~an entirety of~~ said upper surface of said substrate, in which a cross-section of an upper surface of said undercoat layer comprises is characterized by a sectionally trapezoid shape, said undercoat layer being doped with Mg to form convex portions in said upper surface of said undercoat layer; and

group III nitride compound semiconductor layers formed on said undercoat layer.

33. (Currently amended) A group III nitride compound semiconductor device according to claim 32, wherein said sectionally trapezoid shape includes said convex portions each of said convex portions being shaped like a truncated hexagonal pyramid.

34. (Currently amended) A group III nitride compound semiconductor device according to claim 1, wherein said ~~an~~ undercoat layer ~~that is uniformly formed~~ is formed ~~continuously and unbrokenly~~ on said entirety of said upper surface of said substrate.

35. (Withdrawn) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises a quaternary compound semiconductor represented by $\text{Al}_x\text{Ga}_y\text{In}_{1-x-y}\text{N}$, where $0 < x < 1$, $0 < y < 1$, and $0 < x + y < 1$.

36. (Withdrawn) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises a ternary compound semiconductor represented by $\text{Al}_x\text{Ga}_{1-x}\text{N}$, where $0 < x < 1$.

37. (Currently amended) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer comprises ~~one of AlN, GaN, and InN.~~

38. (Withdrawn-Currently amended) A group III nitride compound semiconductor device, comprising:

a substrate including an upper surface;

an undercoat layer ~~uniformly~~ formed on ~~an entirety of~~ said upper surface of said substrate, said undercoat layer being doped with Mg to form convex portions in said upper surface of said undercoat layer in which an upper surface of said undercoat layer is covered with convex portions, each of said convex portions being shaped like a truncated hexagonal; and

group III nitride compound semiconductor layers formed on said undercoat layer,

wherein said undercoat layer comprises GaN, in which Ga is partially replaced by one of Al, In, B, and Th and in which N is partially replaced by P, As, Sb, and Bi.

39. (Currently amended) A group III nitride compound semiconductor device, comprising:

a substrate including an upper surface;

an undercoat layer ~~uniformly~~ formed on ~~an entirety of~~ said upper surface of said substrate, said undercoat layer being doped with Mg to form convex portions in an upper surface of said undercoat layer, said convex portions comprising sloped portions in which a percentage of area of said upper surface of said undercoat layer in a plane projection is occupied by slopes; and

group III nitride compound semiconductor layers formed on said undercoat layer,

~~wherein each of said slopes, when projected on a plane of said undercoat layer, comprise a width smaller than 2 μ m.~~

40. (Currently amended) A group III nitride compound semiconductor device, according to claim 39, wherein a surface area of said sloped portion comprises in a range from 5% to 100 % of said upper surface of said undercoat layer ~~said percentage of area may comprise one of 70% to 100% to form a textured surface, 30% to 70% to form a sectionally trapezoid shape~~

~~in cross section, and 5% to 30% to form a pit shape in cross section.~~

41. (Currently amended) A group III nitride compound semiconductor device, according to claim 40, wherein a surface area of said sloped portion comprises in a range from 70% to 100 % of said upper surface of said undercoat layer ~~said percentage of area of 30% to 70%, which forms a sectionally trapezoid shape in cross section, comprises convex portions, each of said convex portions being shaped like a truncated hexagonal pyramid.~~

42. (Currently amended) A group III nitride compound semiconductor device according to claim 6, wherein said sedimentary layer comprises AlN ~~at least one of $\text{Al}_x\text{Ga}_{1-x}\text{N}$ where $0 \leq x \leq 1$, TiN, HfN, ZrN, and TaN.~~

43. (Withdrawn) A group III nitride compound semiconductor device according to claim 1, further comprising a growth suppressing material layer formed on a part of said undercoat layer.

44. (Withdrawn) A group III nitride compound semiconductor device according to claim 43, wherein said part of said undercoat layer comprises troughs located between said convex portions.

45. (New) A group III nitride compound semiconductor device according to claim 1, wherein said group III nitride compound semiconductor layers are separated from said substrate by said undercoat layer.

46. (New) A group III nitride compound semiconductor device according to claim 45, wherein one of said group III nitride compound semiconductor layers comprises convex portions which are formed on said undercoat layer and between said convex portions of said undercoat layer.

47. (New) A group III nitride compound semiconductor device according to claim 1, wherein said undercoat layer and a group III nitride compound semiconductor layer which is

Serial No. 09/885,046

6

Docket No. T36-133525M/KOH

most adjacent to said undercoat layer comprise different materials.